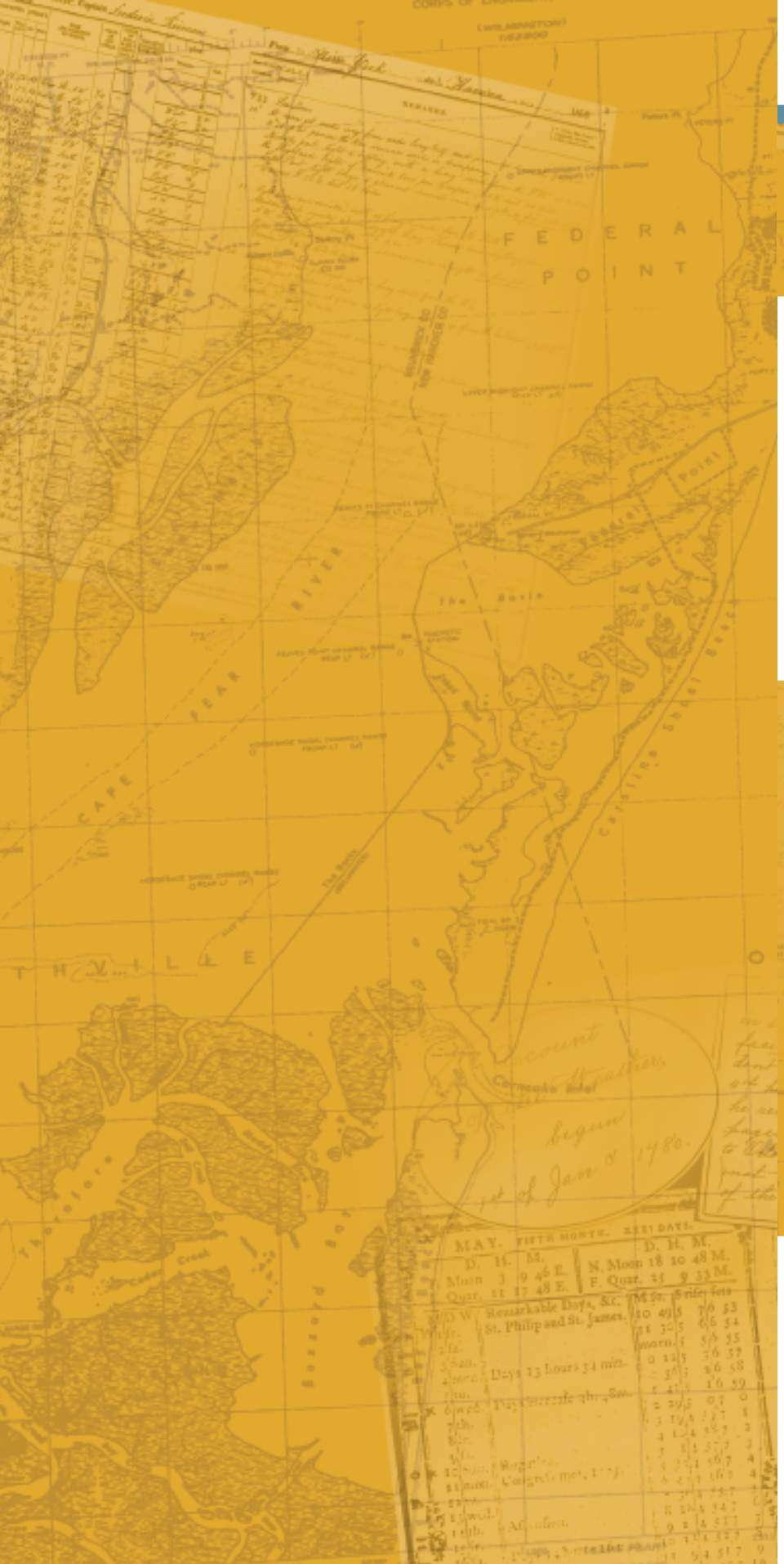
CDMP

Climate Database Modernization Program

ANNUAL REPORT 2004

National Oceanic and Atmospheric Administration
National Environmental Satellite, Data, and Information Service
National Climatic Data Center
Asheville, North Carolina



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NOAA's RICH HERITAGE

CDMP supports NOAA's core mission functions to archive, store, and manage environmental data and information under data stewardship for the United States. Indeed, these holdings are part of the U. S. National Archives. Many were recorded on paper, film, and digital media, and stored at various NOAA Centers. Prior to CDMP, access to these valuable data sources was very limited, and, being undigitized, these data could not be used effectively. Also, storage technology for the archives was not state-of-the-art; without proper preservation of the media, the information they contained was in danger of being lost forever.

CDMP has greatly improved the access to and preservation of NOAA's holdings by beginning the process of migrating these data to new media. This will increase data accessibility, and will enable the integration of these historical data sets into the integrated global databases needed by today's climate and environmental data users.

CDMP has just completed its fifth year. As it has matured, the program has continued to grow and expand, and now includes tasks involving five of the six NOAA line offices, Regional Climate Centers, State Climatologists, the U.S. Air Force, the World Meteorological Organization, and foreign meteorological services.

CDMP PROGRAM ACHIEVEMENTS

The National Oceanic and Atmospheric Administration's Climate Database Modernization Program has a relatively simple mission: to make major climate and environmental databases available via the World Wide Web.

CDMP has continued to grow. Over the last five years – partnering with five NOAA line offices and four private contractors in over 100 separate projects – CDMP has placed online over 45 million weather and environmental records. These historic records are now available to researchers around the world for the first time via the Internet.

MAJOR CDMP TASKS IN 2004

National Environmental Satellite, Data, and Information Service

Subscription and Fiscal Services
Daily Cooperative Observations - imaging and keying
Hourly Surface Observations - imaging and keying
Upper-Air Observations - imaging and keying
Hourly Precipitation Data - imaging and keying
Defense Meteorological Satellite Program (DMSP) Satellite Images - imaging
Mechanical Bathythermograph (MBTs) - digitizing
Ionospheric Observations – keying
Arctic Sea Ice Charts - imaging
Metadata development
Integrated inventory development
On-site Support Staff

National Marine Fisheries Service

Lightship Observations - imaging and keying
Data Recovery on Cetaceans - imaging and keying
Sea Cat / Bongo Stations - keying
Reef Environmental Education Foundation (REEF) - imaging

National Ocean Service

Shoreline Charts - vectorizing
Sea Surface Temperature and Density - keying
Nautical Charts - imaging
Water level - imaging
Historical Coast Pilots - imaging
Tide & Current Prediction Tables - imaging

National Weather Service

African Upper-Air Observations - keying
Hurricane Reconnaissance - imaging & streaming video

Office of Oceanic and Atmospheric Research

WMO Pub 47 - imaging & keying
Early European Ship logbooks- keying

NOAA Cooperative Agreements with Foreign Organizations

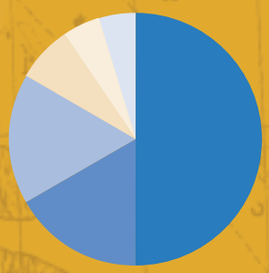
Lightship data - Finland & Sweden
Surface data imaging and keying - Uruguay
Marine observations / keying - Canada
Moravian 19th Century imaging and keying - Germany



NOAA Shoreline Vectorization Project — 2004 Department of Commerce Silver Medal Award Winner.

The demand for rapid and complete access to the Nation's and world's climate data by researchers and global change scientists was a key driver in the establishment of CDMP, which is managed through the National Climatic Data Center located in Asheville, NC. This program was initiated by Congress to assist NOAA in modernizing and improving access to the Nation's climate data and information, both historic and current.

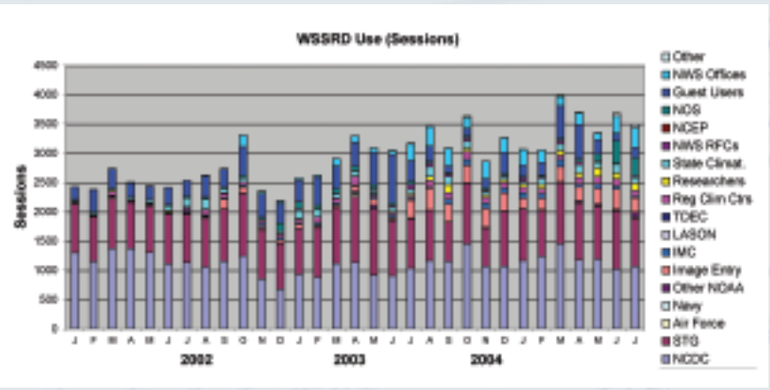
FY04 TASK BY NOAA ORGANIZATION



Total number of NOAA CDMP projects reached an all-time high (40 plus) in 2004

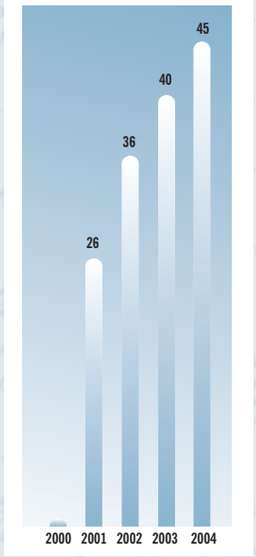
CDMP sponsors an annual Data Access Workshop as a forum for information and an experience exchange between the various NOAA task leaders. The workshop, held at various NOAA facilities, allows for the presentation of new and continuing proposals by NOAA agencies for the upcoming year's program. This workshop process allows CDMP staff to evaluate data rescue projects within the NOAA organization.

Currently, about 20 NOAA (non-NCDC) projects are supported through CDMP. The workshop forum is expected to continue in the future as data rescue and recovery efforts expand, providing other NOAA agencies a convenient means of accessing the resources of CDMP.

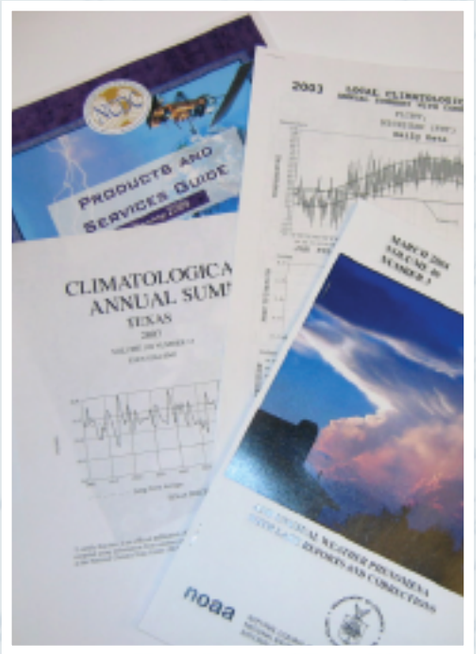


Historical WSSRD login sessions.

Part of CDMP's mission is to make climate and environmental data more accessible. To that end, CDMP utilizes the WSSRD® system (Web Search Store Retrieve Display), which allows online access to historical data. The number of records online via the CDMP WSSRD® system grew to over forty-five million by the end of 2004. These records are available to researchers for use in various climatological and environmental studies. Since 2002, the number of monthly user sessions on WSSRD® has increased by nearly 50% (see above).



Amount of records available online (In Millions)



The first publication offered through WSSRD® was the *Climatological Data* (CD) publication. Previously, online subscribers were only able to access this publication back to October, 1997. Now, it is available back to 1890. Through CDMP, all five serial publications (*Climatological Data, Hourly Precipitation Data, Storm Data, Monthly Climatic Data for the World, & Local Climatological Data*) have been scanned, and all are available through the National Virtual Data System online store. All are available on WSSRD®.

CDMP PARTNERS AND MILESTONES

The CDMP could not exist without the extraordinary efforts of people within NOAA and those in the private sector who do the keying, imaging, and database development. CDMP projects have created scores of new private sector data entry/information management jobs in several economically challenged areas in West Virginia, Kentucky and Maryland.

The project tasks supported by CDMP are well suited for the private sector. Many of these tasks have been shifted from government employees to CDMP contractors in the above mentioned states. Tasks performed by these contractors include the printing and distributing of the NCDC serial climate publications, managing accounts receivable, imaging and keying of incoming records, hosting and maintaining the images online, and providing expert personnel in support of various projects.

Information Manufacturing Corporation

SOURCECORP

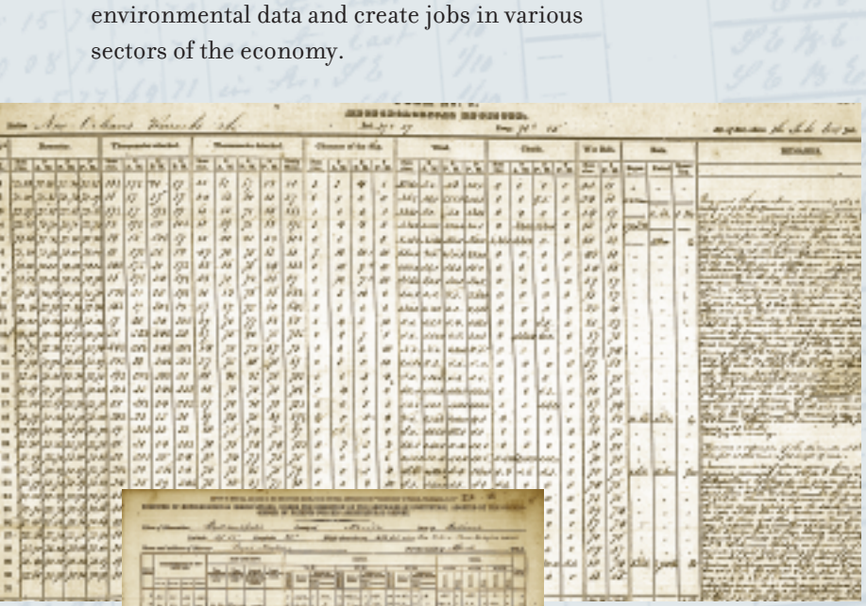
LASON

STG

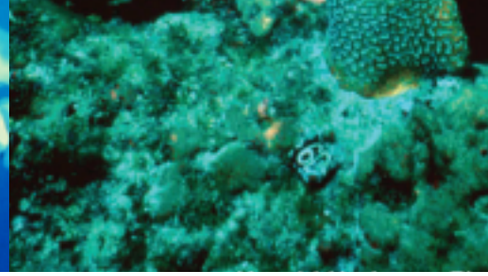
The three prime contractors for CDMP include Information Manufacturing Corporation, Rocket Center, West Virginia; SourceCorp, London, Kentucky; and Lason Systems, Inc., Beltsville, Maryland. Excellent support is also provided by the NCDC on-site contractor, STG Corporation, whose staff prepares many of the data for shipment and performs extensive quality control on the returning data products. With over 40 projects ongoing in a given year, the contractors must remain focused and flexible to meet each project's requirements on schedule and within budget.

CDMP has keyed 27 million additional surface hourly meteorological records, extending the database from 1948 back to the establishment of some 150 airport stations. The period of record will be extended back into the mid 1800s by keying the city Weather Bureau office and Army Signal Service records. Other databases throughout NOAA are being expanded with the support of CDMP through the efforts of numerous task managers and international partners.

CDMP supports NOAA's effort to provide access to its vast archive of climate and environmental data. The CDMP program is an example of a successful government project working hand-in-hand with the private sector to recover valuable climate and environmental data and create jobs in various sectors of the economy.



CDMP is responsible for the keying of historical weather data, such as the observations on the Signal Service form above from New Orleans (dated April, 1843) or the one to the left from Indianapolis (dated April 1864).



REEF PROJECTS

The Reef Environmental Education Foundation (REEF) coordinates the Fish Survey Project, a citizen-science marine fish/monitoring program. Through this ongoing program, volunteers submit sightings data collected during underwater visual surveys. These surveys are conducted along the coastal areas of North and Central America, the Caribbean, and Hawaii, including eight National Marine Sanctuaries. During a survey, a diver records information on a waterproof slate. After the dive, the information is transferred to a four-page paper data sheet (optically-readable scanform).

The Fish Survey Project has been in place since 1993. To date, the database contains over 62,000 surveys from thousands of sites; REEF currently receives approximately 2,000 new surveys a month. The REEF dataset represents the largest continuous dataset currently available for fish assemblages in the tropical western Atlantic. The amount of data submitted through this program has increased exponentially over the past few years, and growth is expected to continue in this manner. CDMP is scanning and indexing the historical REEF survey forms gathered during 1993-2002, and will electronically process incoming records in 2005.

HURRICANE PROJECTS

An important NOAA task involves increasing the accessibility and utilization of historical hurricane research data, and protecting it from the danger of being lost due to medium degradation and environmental decay. The flight level and radar data from hurricane reconnaissance flights from 1956 through 1976 currently reside on 35 mm negative microfilms, which are not only difficult to access by researchers, but are in an increasing state of degradation. These microfilms are the only record of the raw data from these flights, and are irreplaceable. In addition, visual records from these flights are stored on 16mm and 35mm movie films prior to 1994, and on VHS videotapes thereafter. These films are particularly vulnerable to degradation due to color shifting.

Since the recent increase in Atlantic hurricane activity has been theorized to be the result of multidecadal-scale fluctuations in various climatic factors, the hurricane reconnaissance data taken from 1956 - 1976 have become increasingly valuable in terms of quantifying the climatology associated with historical Atlantic basin hurricane activity, and in identifying trends in hurricane structure and strength. It will also provide historical perspective to the presently available data sets. There are approximately 3,600 rolls of microfilm to be copied. About 50% of these reels consist of a data display of several dials representing the present aircraft readings, such as latitude, longitude, temperature and wind speed, which were photographed every ten seconds. The radar microfilms are photographs of the radar displays of the lower fuselage, tail, and nose radars, which were taken every thirty seconds. There are an additional 2,100 rolls of 16mm and 35mm movie film and nearly 500 videotapes. These were taken by fix-mounted cameras onboard the NOAA aircraft during the flights. The cameras were mounted in the nose, over each wing, and in the belly of the planes. They are in time-compressed mode, varying between one frame every twelve to every thirty seconds.

WEB ADDRESSES FOR NOAA ORGANIZATIONS:

National Oceanic & Atmospheric Administration (NOAA):
www.noaa.gov

National Environmental Satellite, Data, and Information Service (NESDIS):
www.nesdis.noaa.gov

National Climatic Data Center (NCDC):
www.ncdc.noaa.gov

National Geophysical Data Center (NGDC):
www.ngdc.noaa.gov

National Oceanographic Data Center (NODC):
www.nodc.noaa.gov

National Ocean Service (NOS):
www.nos.noaa.gov

National Marine Fisheries Service (NMFS):
www.nmfs.noaa.gov

PRODUCT SPECIFIC URLS:

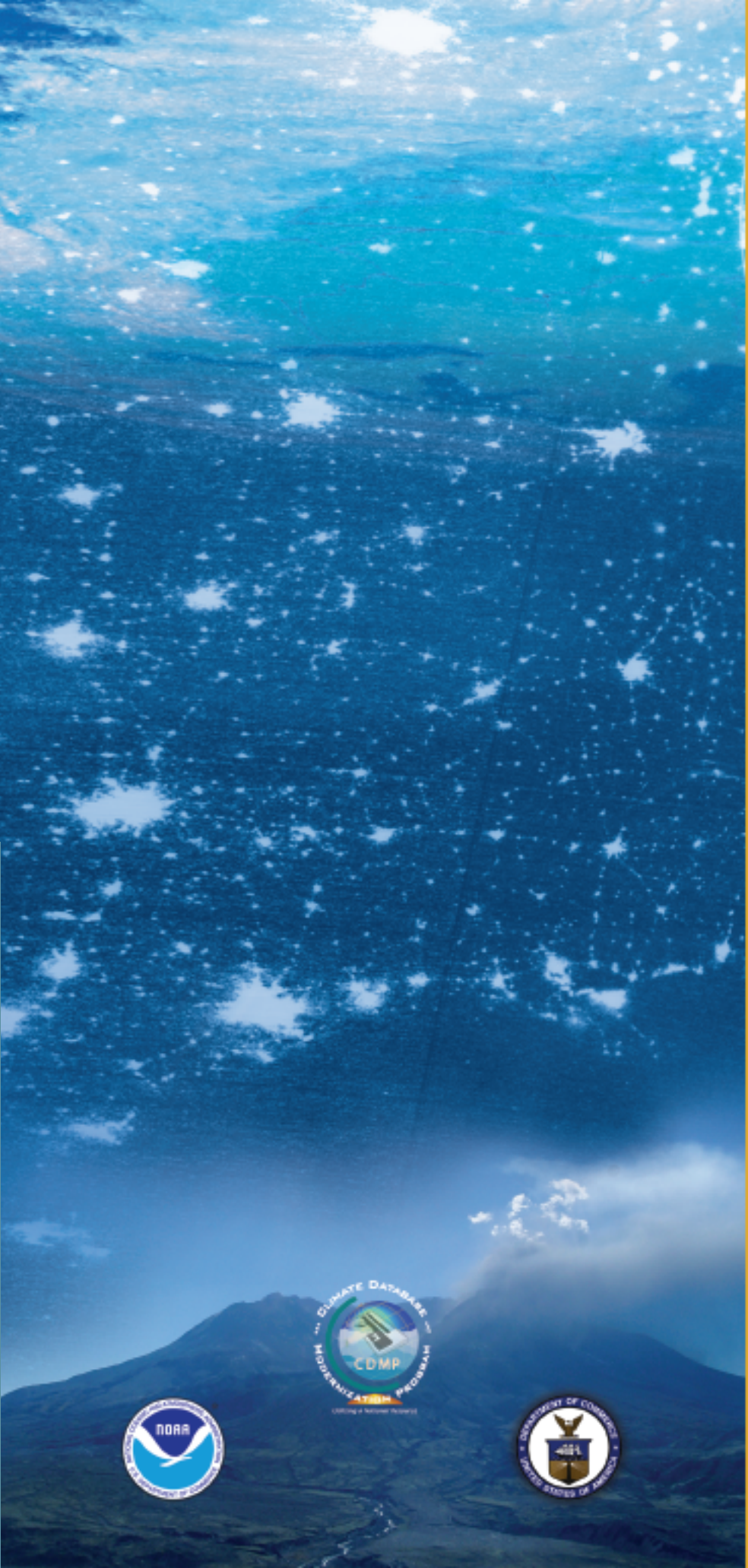
Defense Meteorological Satellite Program (DMSP):
dmsp.ngdc.noaa.gov/dmsp.html

Coastal Services Center Shoreline Mapping:
www.csc.noaa.gov/shoreline/index.html

NOS Data Explorer:
oceanservice.noaa.gov/dataexplorer/

NOAA Central Library, Climate Data Imaging Project:
docs.lib.noaa.gov/rescue/data_rescue_home.html
U.S. Daily Weather Maps:
docs.lib.noaa.gov/rescue/dwm/data_rescue_daily_weather_maps.html

Cover Collage includes Nightlights film February 14, 1991, hurricane Jeanne on September 25, 2004, Mt. St. Helens in October 2004 and underwater pictures from REEF.


CLIMATE DATABASE
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MODERNIZATION PROGRAM
NOAA
DEPARTMENT OF COMMERCE
UNITED STATES OF AMERICA